

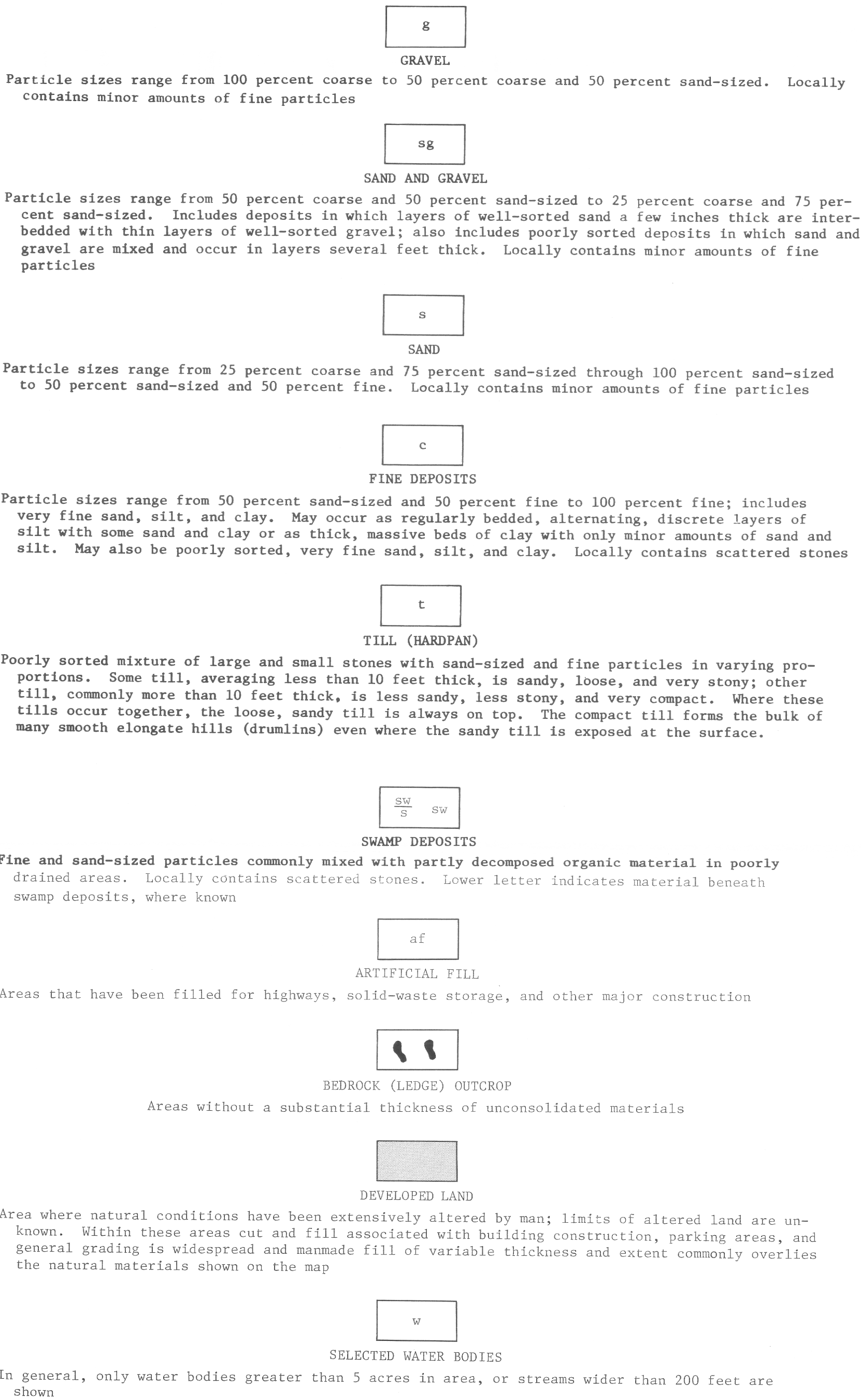
The Connecticut Valley Urban Area Project (CVUAP) covers about 5,000 square miles from New Haven and New London, Conn., on Long Island Sound north to Brattleboro, Vt., and Keene, N.H. Major cities within the project area include New Haven and Hartford, Conn., and Springfield, Mass. Commuter traffic to these urban centers reaches almost all parts of the project area. Interstate routes provide major north-south and east-west transportation corridors. Urbanization and industrial development are likely to continue within this central valley area of New England. In order that such anticipated growth be accomplished in an orderly manner and with a minimum of adverse environmental effects, information on the nature and distribution of natural resources will become increasingly important. The objective of CVUAP is to anticipate this need by providing geologic and hydrologic information to aid in planning and resource management. This information is in the form of maps, each presenting a single resource characteristic, or combination of related characteristics of the land surface, earth materials, or water resources at a common scale and in a simplified format. This is one in a series of maps showing one of the geologic or hydrologic characteristics of the map area.

E X P L A N A T I O N

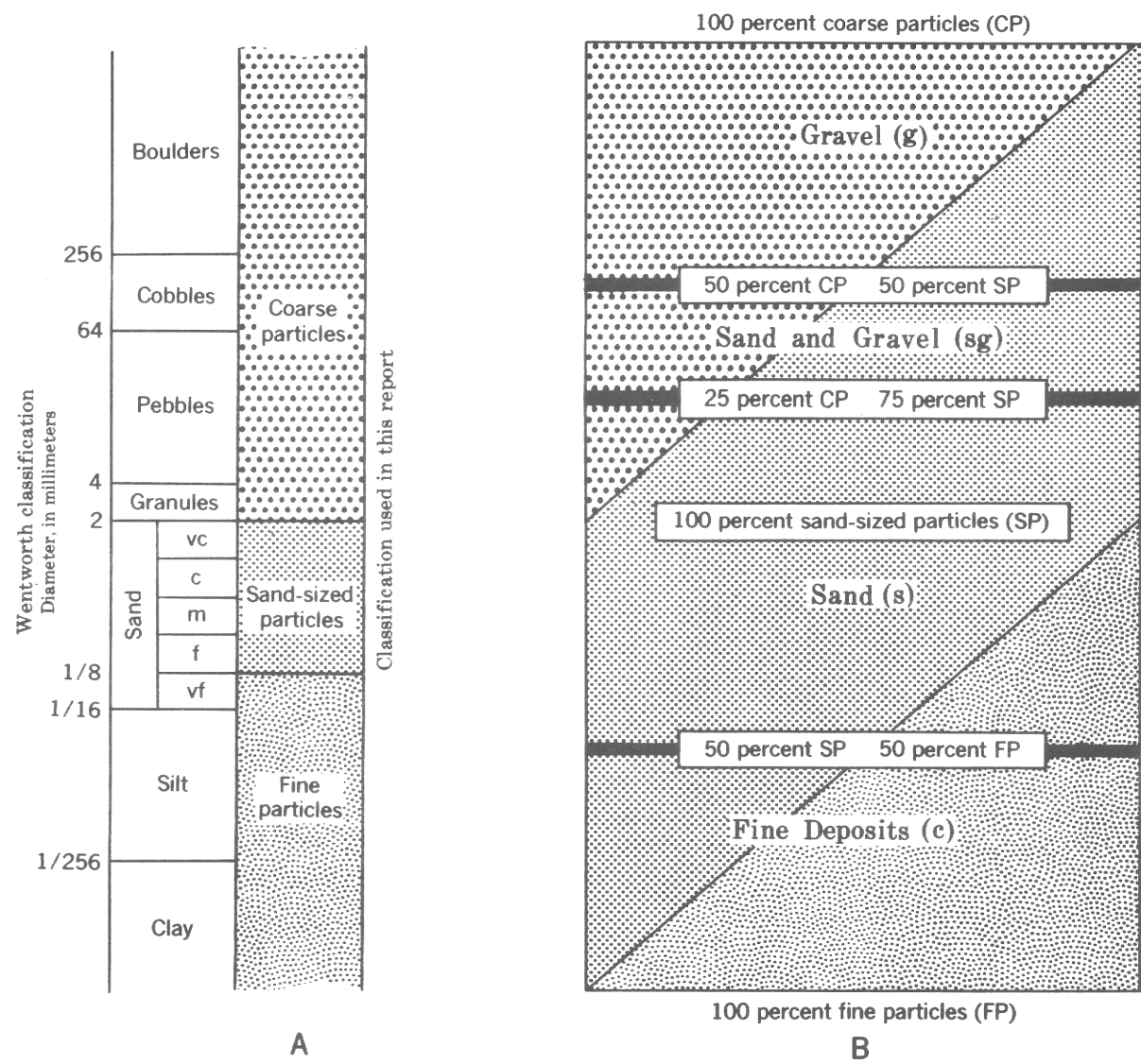
The units on this map indicate the first material of substantial thickness (generally greater than 3 feet) encountered beneath the soil layer. The soil layer (commonly a foot or two thick) is not mapped. Other materials, different in composition, may underlie each map unit (see cross sections) or may occur as minor lenses within each map unit.

Areas without a substantial thickness of unconsolidated material are shown in black.

The map is intended to serve as an aid in reconnaissance evaluation of unconsolidated materials and can be used to identify areas of potential interest. The map should NOT be used as a substitute for onsite investigations.



MATERIALS CLASSIFICATION



Particle sizes, as defined by the Wentworth classification (Wentworth, 1922), are grouped into three classes: coarse, sand-sized, and fine particles (A). Coarse particles include all sizes larger than 2 mm (granules, pebbles, cobbles, and boulders). Sand-sized particles include all sizes ranging from 2 to 1/8 mm (very coarse, coarse, medium, and fine sand). Fine particles include all sizes smaller than 1/8 mm (very fine sand, silt, and clay). Very fine sand is included in this latter class because it commonly is associated with finer materials, and because very fine sand, silt, and clay are similar when saturated with water and under compression or shear.

Most unconsolidated materials are mixtures of the particle-size classes. The map units *gravel*, *sand and gravel*, *sand*, and *fine deposits*, therefore, are defined by percentages of each class size present (B). The map unit *gravel* is a mixture of coarse particles and sand-sized particles containing 50 percent or more coarse sizes. The map unit *sand and gravel* is a mixture in which coarse particles range from 50 to 25 percent and sand-sized particles range from 50 to 75 percent. The map unit *sand* is a mixture of particle sizes ranging from 25 percent coarse and 75 percent sand-sized particles through 100 percent sand-sized particles to 50 percent sand-sized and 50 percent fine particles. The map unit *fine deposits* contains more than 50 percent fine particles.

Materials mapping involves a visual estimate of particle-size distribution in a deposit by the field geologist. Percentages of particle sizes therefore may vary somewhat from place to place beyond the limits set forth in the definition above. Minor amounts of particle sizes other than those defined for each map unit may also occur locally in some deposits.

Some map units, such as till and swamp deposits commonly contain such a wide range of particle sizes in such variable proportions that they have not been included in this material classification. These map units are described separately in the explanation.

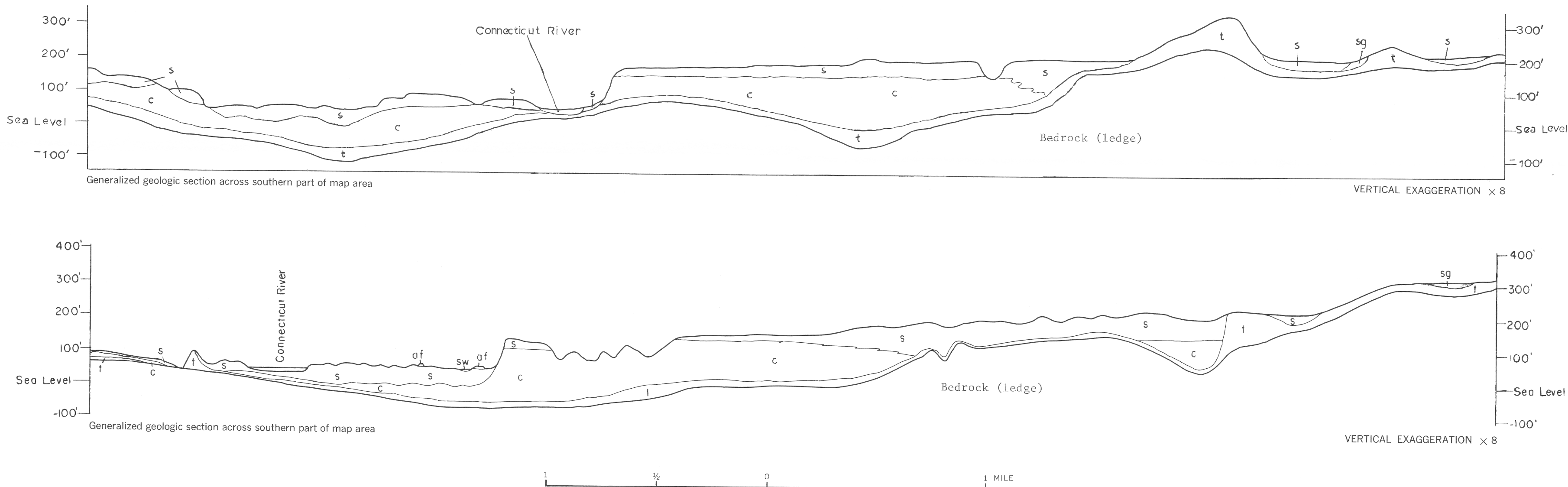
Unconsolidated materials are nonrenewable resources, composed predominantly of sand, gravel, silt, and clay. These materials cover large areas in most regions and consequently are the earth materials most commonly involved in our everyday affairs. They must be used as necessary, but they should not be wasted and should, therefore, be an important consideration in many land-use decisions.

The nature of the unconsolidated materials and the slopes on which they lie determine the characteristics of agricultural soils. The characteristics of unconsolidated materials can also determine: 1) suitability for construction materials, 2) engineering properties, and 3) capability for effective waste disposal. The three-dimensional distribution of unconsolidated materials below the water table is a critical factor in the occurrence and availability of ground water. The shape of the land in areas underlain by unconsolidated materials reflects the physical properties and origin of these materials and provides an important aesthetic element in natural settings.

REFERENCES

Hartshorn, J. H., and Koteff, Carl, 1967, Geologic map of the Springfield South quadrangle, Hampden County, Massachusetts, and Hartford and Tolland Counties, Connecticut: U.S. Geol. Survey Geol. Quad. Map GQ-678.

Wentworth, C. K., 1922, A scale of grade and class terms for clastic sediments: Jour. Geology, v. 30, p. 377-392.



MAP SHOWING UNCONSOLIDATED MATERIALS, SPRINGFIELD SOUTH QUADRANGLE, MASSACHUSETTS - CONNECTICUT

By
Carl Koteff
1973

For sale by U.S. Geological Survey, price \$1.00 per set